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DEPARTMENT OF THE ARMY **RST--02830R**
(05/02)
U.S. ARMY CORPS OF ENGINEERS ----------

GUIDE SPECIFICATION FOR CONSTRUCTION

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ORNAMENTAL IRON GATES

05/02

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GUIDE SPECIFICATION FOR CONSTRUCTION

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SECTION 02830R

ORNAMENTAL IRON GATES
05/02

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NOTE: This guide specification covers the requirements for ornamental iron gates. This guide specification is to be used in the preparation of project specifications in accordance with ER 1110-1-8155.

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PART 1 GENERAL

1.1 REFERENCES

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NOTE: Issue (date) of references included in project specifications need not be more current than provided by the latest change (Notice) to this guide specification. During the reference reconciliation process, SPECSINTACT will automatically remove references from this paragraph that have been removed from the text.

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The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only.

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM A 36/A 36M	(1997a) Structural Steel
ASTM A 47	(1990(1996)) Ferritic Malleable Iron Casting
ASTM A 48	(1994) Gray Iron Castings

ASTM A 500	(1998) Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes
ASTM A 501	(1998) Hot-Formed Welded and Seamless Carbon Steel Structural Tubing
ASTM A 536	(1984 (1993)) Ductile Iron Castings
ASTM C 94	(1998c) Ready Mixed Concrete
ASTM C 109	(1999) Compressive Strength of Hydraulic Cement Mortars
ASTM C 827	(1995a (1997)) Change in Height at Early Ages of Cylindrical Specimens from Cementitious Mixtures
ASTM C 1090	(1996) Measuring Changes in Height of Cylindrical Specimens From Hydraulic-Cement Grout
ASTM C 1107	(1999) Packages Dry, Hydraulic-Cement Grout (Nonshrink)

AMERICAN WELDING SOCIETY (AWS)

AWS D1.1	(1998) Structural Welding Code - Steel

1.2 QUALITY ASSURANCE

1.2.1 Construction Materials and Methods

Materials shall be new stock, free from defects impairing strength, durability or appearance and of best commercial quality for each intended purpose. Powder coated steel or aluminum gates are not acceptable alternatives to finish coated ornamental iron. Welding shall be in accordance with AWS D1.1. The quality of workmanship, materials, paints coatings, and installation shall be set using Cassidy Brothers Forge, Incorporated, U.S. Route 1, Rowley, MA 01969-1796. (978) 948-7303 as a standard.

1.2.2 Shop Inspection

Prior to installation, all openings shall be inspected by the fabricator to verify that openings are square and have been prepared to sizes and details in the approved shop drawings. All gates shall be installed with the fabricator on site at the time of installation.

1.2.3 Tolerances

All steel to be pre-straightened with no curves or deformities and should be straight within 3.2 mm (1/8-inch) overall from end to end in the

finished product. All pickets parallel to end picket within 3.2 mm (1/8-inch) and all spaces equal to one another (Maximum allowable deviation in all spaces, 1.5 mm (1/16-inch). Frames and horizontal members must be parallel to each other within 1.5 mm (1/16-inch) and joined 90 degrees within 1.5 mm (1/16-inch) overall length dimension submitted on shop drawings. Diagonal measurements of each panel to be within 3.2 mm (1/8-inch) to each other on any single panel.

1.3 SUBMITTALS

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NOTE: Submittals must be limited to those necessary for adequate quality control. The importance of an item in the project should be one of the primary factors in determining if a submittal for the item should be required.

Indicate submittal classification in the blank space following the name of the item requiring the submittal by using "G" when the submittal requires Government approval. Submittals not classified as "G" will show on the submittal register as "Information Only". For submittals requiring Government approval, a code of up to three characters should be used following the "G" designation to indicate the approving authority; codes of "RE" for Resident Engineer approval, "ED" for Engineering approval, and "AE" for Architect-Engineer approval are recommended.

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Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

Acceptable Manufacturer Products:

Manufacturer's products listed in this specification are referenced to establish a standard of quality. When the specific product listed is submitted by the Contractor that submittal will be considered as 'For Information Only'(FIO). When an equal to that named in this specification is submitted it shall be 'For Government Approval'(G). The following manufacturer products are specifically mentioned in this specification:

Cassidy Brothers Forge, Incorporated U.S. Route 1 Rowley, MA 01969-1796 (978)948-7303 www.cassidybros.com	Gates to match Solomon mortar color SGS 80X Lt. Chocolate

Manufacturers product submitted as an 'or equal'; G ED

SD-02 Shop Drawings

Ornamental Iron Gates; G ED

Detail drawings include all shop drawings for fabrication and erection including plans, elevations and large scale details. Details shall include anchorages and accessory items,field connections and touch-up specifications. Members and connections for any portion of the gates not shown on the contract drawings shall be detailed by the fabricator and indicated on the detail drawings. All welds shall be indicated by standard welding symbols of the AWS D1.1

SD-03 Product Data

Ornamental Iron Gates; G ED

Coatings; G ED

Manufacturer's descriptive data and installation instructions.

PART 2 PRODUCTS

2.1 STEEL AND IRON

Steel plates, shapes, and bars shall conform to ASTM A 36. Hot-rolled tubing shall conform to ASTM A 501. Cold-rolled tubing shall conform to ASTM A 500. Gray iron castings shall conform to ASTM A 48, Class 30. Malleable iron castings shall conform to ASTM A 47. Ductile iron castings shall conform to ASTM A 536.

2.2 HARDWARE

Hinges shall be of the size and material to suit the gate size and mounting surface. Hinges shall be of the non-lift-off type, offset to permit 180 degree openings.

2.3 GATES

Gates shall be the type and swing shown. Latches, hinges, stops, keepers, and other hardware items shall be furnished as required for the operation of the gates. Latches shall be arranged for padlocking so that the padlock will be accessible from both sides of the gates. Method shall be provided for holding the gates in the open position.

2.4 CEMENT GROUT

Cement grout shall conform to ASTM C 109 and shall have a minimum compressive strength of 56 MPa (8,000 psi) at 7 days. Grout shall be non-metallic, nonshrink, and shall exhibit 0 percent shrinkage from time of placement when tested in accordance with ASTM C 827 and ASTM C 1090. Packaged cement grout shall conform to ASTM C 1107.

2.5 MISCELLANEOUS MATERIALS

Fasteners, anchors, and inserts shall be as recommended by the fabricator unless other wise indicated.

2.6 SURFACE FINISH

Coating materials for gates shall be a polyamide epoxy, high build, high solids primer and an aliphatic polyurethane high build top coat. Surfaces must be primed and cured prior to the application of the finish coat. The quality of the coating shall be set using Valspar Valchem High Build Epoxy 89 series and Valspar Urethane High Build V41 series, semi-gloss as the standard.

PART 3 EXECUTION

3.1 GENERAL

Contractor shall verify all measurements and shall take all field measurements necessary before fabrication. Gates shall be fabricated, prepared for installation and adjusted to stay open when placed in the open position.

3.2 FABRICATION

Form ornamental metalwork to required shapes and sizes with true curves, lines, and angles. Provide components in sizes and profiles indicated, but not less than required to comply with requirements indicated for structural performance. Provide castings that are sound and free of warp or defects which impair strength or appearance.

Allow the thermal movement resulting from maximum change in ambient temperature, in the design, fabrication, and installation of installed metal assemblies to prevent buckling, opening up of joints and overstressing of welds and fasteners.

Provide necessary lugs and brackets for assembly of units. Use concealed fasteners wherever possible.

Mill joints to a tight hairline fit. Cope or miter corner joints. Form joints exposed to weather to exclude water penetration.

Finish exposed surfaces to smooth, sharp, well defined lines and arises.

Preassemble items in the shop to the greatest extent possible to minimize field splicing and assembly. Disassemble units only as necessary for shipping and handling limitations. Clearly mark units for reassembly and coordinated installation.

3.3 SURFACE FINISH

3.3.1 Paint Surface

The painting surface shall be clean and free of oil and dirt. The coating system shall be applied in a suitably designed paint spray booth capable of controlling environmental conditions. Paint shall not be applied when the air, steel, or paint materials are below 50 degrees F. or the humidity is above 80 percent. The paint shall be fully cured prior to installation.

3.3.2 Coating Process

Coating work shall not be allowed when the relative humidity exceeds 85 percent or when the temperature is less than 5 degrees above the dew point. The required finished product shall be free of runs, sage, pinholes, and holidays. The polyamide epoxy shall be applied to achieve a dry film thickness in the range of 4.0 to 7.0 mils. The polyurethane top coat shall be applied to achieve a dry film thickness in the range of 5.0 to 7.0 mils. Touch up all scratches to gate assembly, accessories, and hardware made during installation with the same paint coating used during shop finishing.

3.4 PREPARATION FOR INSTALLATION

Coordinate and furnish anchorages and setting drawings, diagrams, templates, instructions, and directions for installation of items having integral anchors which are to be embedded in concrete or masonry construction. Coordinate delivery of such items to the project site.

3.5 GENERAL INSTALLATION

Provide anchorage devices and fasteners where necessary for securing ornamental metal items to in-place construction, including threaded fasteners for masonry inserts and other connectors as required.

Perform cutting, drilling, and fitting required for installation of ornamental metalwork. Set products accurately in location, alignment, and elevation, plumb, level, and true, measured from established lines and levels. Provide temporary bracing or anchors in formwork for items and restore finishes to eliminate any evidence of such corrective work.

Field welding shall comply with AWS D1.1 for procedures, appearance, weld quality, and methods for correcting welding work.

3.6 ADJUSTING

Immediately after erection, clean field welds, bolted connections, and abraded areas of shop paint and paint exposed ares with the same paint coating used in the shop painting process.

Restore finishes damaged during installation and construction period so that no evidence remains of correction work. Return items which cannot be refinished in the field to the shop. Make required alterations and refinish entire unit or provide new units as required.

-- End of Section --